

What is claimed is:

1. A targeted retroviral vector particle comprising a modified viral surface protein for targeting the vector and a cytokine gene.

2. The targeted retroviral particle of claim 1, wherein the modified viral surface
5 protein is targeting the extracellular matrix or tumor vasculature.

3. The targeted retroviral particle of claim 1, wherein the modified viral surface protein is targeting the extracellular matrix.

4. The targeted retroviral particle of claim 3, wherein the modified viral surface protein is targeting a collagen binding motif.

10 5. The targeted retroviral particle of claim 4, wherein the modified viral surface protein is targeting the Von Willebrand coagulation factor.

6. The targeted retroviral particle of claim 3, wherein the modified viral surface protein is targeting tumor vasculature.

15 7. The targeted retroviral particle of claim 1, wherein the cytokine gene is selected from the group consisting of IL-1, TNF, IL-2, IFN- γ , IL-4, IL-7 and GM-CSF.

8. The targeted retroviral particle of claim 7, wherein the cytokine gene is GM-CSF.

9. A pharmaceutical composition comprising the targeted retroviral vector of claim 1.

10. A method for inhibiting cancer in a subject comprising administering to the subject an effective amount of the pharmaceutical composition of claim 9.

20 11. The pharmaceutical composition of claim 9, further comprising a targeted retroviral vector particle comprising a modified viral surface protein for targeting the vector and a cytotoxic gene.

25 12. The pharmaceutical composition of claim 11, wherein targeted retroviral particle comprising a modified viral surface protein for targeting the vector and a cytotoxic gene is targeting the extracellular matrix or tumor vasculature.

13. The pharmaceutical composition of claim 11, wherein the cytocidal gene is selected from the group consisting of tumor suppressor genes, thymidine kinases or mutated cyclin genes.

14. The pharmaceutical composition of claim 13, wherein the mutated cyclin gene is
5 a dominant negative mutation of a cyclin G1 gene.

15. A method for inhibiting cancer in a subject comprising administering to the subject an effective amount of the pharmaceutical composition of claim 11.

16. A composition comprising a targeted retroviral vector particle comprising a modified viral surface protein for targeting the vector to the Von Willebrand coagulation
10 factor and a cytokine gene and a targeted retroviral vector particle comprising a modified viral surface protein for targeting the vector to the Von Willebrand coagulation factor and a cytocidal gene.

17. The composition of claim 16, wherein the cytocidal gene is a mutated cyclin gene.

18. The composition of claim 17, wherein the cytocidal gene is a dominant negative
15 mutation of the cyclin G1 gene.

19. The composition of claim 16, wherein the cytokine is selected from the group consisting of IL-1, TNF, IL-2, IFN- γ , IL-4, IL-7 and GM-CSF.

20. The composition of claim 19, wherein the cytokine is GM-CSF.

21. The composition of claim 16, further comprising a pharmaceutical excipient.

22. A method for inhibiting cancer in a subject comprising administering to the
20 subject an effective amount of the pharmaceutical composition of claim 21.